DOOSAN

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# DoMORE®

## CAROLINA DRILLING: HAVING A BLAST ON THE JOB

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# DoMORE®

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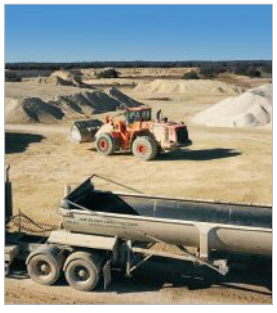

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DOOSAN®

## COMPANY INFORMATION

**Business:** KR Trucking
**In business since:** 2002
**Location:** Gleason, Tennessee
**Doosan equipment:** DA30-5 articulated dump trucks; DX490LC-5 and DX530LC-5 crawler excavators
**Doosan dealer:** Bobcat of Nashville

# THE ORANGE WAVE

If you traveled the interstate near Nashville in fall 2019, you might have seen a whole semi convoy transporting new Doosan® machines. Enter the orange wave.

Located in northwestern Tennessee, KR Trucking specializes in strip mining and hauling. Keith Radford, the managing member of KR Trucking, has been growing his business since its start in 2002. With that growth, the need for more equipment followed. Keith worked with the local Doosan dealer, Bobcat of Nashville, to get rolling with an upgraded fleet of orange machines.

### BUILDING IT UP

KR Trucking started with five employees. Today, the company's operations keep 66 of them busy. Keith insists his faith, quality products and customer care have all played a role in his success.

"As our customer base grew, we grew with them," Keith says. "And I've always said, 'If you treat everybody like you want to be treated, it just kind of falls in your lap.' That's what happened to us. I've always taken care of our customers. If we tell them something, we do everything in our power to make sure we get it done."

It's Keith's care for his customers — Bull Brick, Emery Ceramics and Sphinx Clay Company, to name a few — that has helped his company grow. It finally came time to invest in that growth with new equipment.

### ORANGE EQUIPMENT

His first batch of machines from Bobcat of Nashville included four Doosan DA30-5 articulated dump trucks and one DX490LC-5 excavator. A few months later, he ordered four more trucks and a DX530LC-5.

*continued on page 4*

> **"I'VE ALWAYS TAKEN CARE OF OUR CUSTOMERS. IF WE TELL THEM SOMETHING, WE DO EVERYTHING IN OUR POWER TO MAKE SURE WE GET IT DONE."**
>
> **— KEITH RADFORD** / KR Trucking

Like any business owner, Keith relies on his machines to be dependable. When he had trouble with the service for his other equipment, he started shopping around. He ended up landing on the Doosan website. That led to a call with his local dealer.

"So far it's been impressive," Keith says. "They have done well and outperformed some other products that we're running. And I tell everybody ... because they're just so surprised that I've tried Doosan. In our area down here, you don't see them."

## IT'S ABOUT THE CLAY

The material that Keith and his team dig for is ball clay. And there are only a few places in the world that have minable deposits. They include spots in the eastern United States and just a few places in Europe. That means Keith has been able to do well with the clay resources in his corner of Tennessee. Ball clay, which has a white coloration after firing, is a common component in the ceramics and tile industry. The clay is also used in other products, such as tires and insulation in roof shingles.

Keith and his team work to gain access to the clay by removing the overburden. According to Keith, that can mean digging through 40 to 150 feet of dirt, sand and mud. His operators use the Doosan DX490LC-5 and DX530LC-5 excavators to remove that material. Then the DA30-5 trucks haul it away.

*Pictured left to right: Matt Pixler, Doosan Infracore North America; Ryan Vaughn, Bobcat of Nashville; and Keith Radford, KR Trucking.*

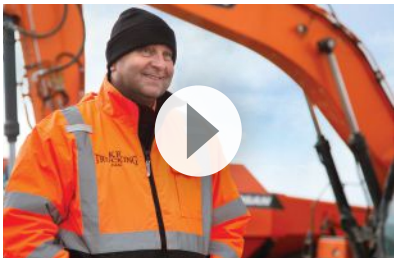
The work of exposing the clay is where their job ends for some customers. For others, they help extract the ball clay as well. The clay veins can run 20 to 80 feet in addition to the excavation needed to get to that point.

The work can be invasive for the land. Keith works with the Mining Safety and Health Administration to make sure their work is environmentally friendly. This means that even after the clay is extracted, the job is far from done.

KR Trucking goes back in to fill the area with overburden from another area. Then, they plant pines or other trees to bring back its ecosystem before the land is either reclaimed or sold.

"Our industry is very environmentally friendly," Keith says. "Once we're done, we put everything back better or above than what it was when we started. Then they'll put trees back. I mean they put it all back like it used to be." DM

Keith Radford went all-in with Doosan equipment. Hear him tell you why: ***na.DoosanEquipment.com/KRTrucking***



## MOLDED FOR CLAY

Keith's interest in the mining industry started at a young age. Growing up, he watched his father work with clay and decided to follow in his footsteps. "My father worked for the clay company his whole life," he says.

In 2002, the father-son pair decided to start KR Trucking. Though retired now, Keith's father still serves as a partner and comes in on a daily basis to be part of the action.

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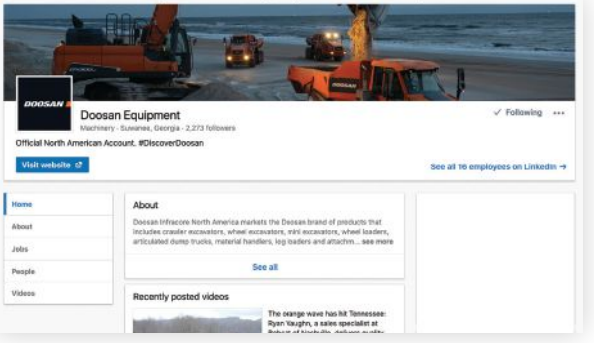


## COMPANY INFORMATION

**Business:** McLaughlin Logging
**In business since:** 1958
**Location:** Orofino, Idaho
**Doosan equipment:** DX225LL-5 road builder, DX300LL log loaders
**Doosan dealer:** Cascade Trader

# KEEPING UP WITH MCLAUGHLIN LOGGING

In Idaho, you can find forest for miles. These trees are a resource and a way of life for many who live there. Being surrounded by endless forest can transport you back to a simpler time. But there's another thought that it can bring to mind — finding a way to survive.

Located in the woods of Clearwater County, McLaughlin Logging found the sweet spot between maintaining their family-founded identity and embracing innovation as a way to thrive.

### A FAMILY BUSINESS

McLaughlin Logging got its start when a young Bruce McLaughlin headed west from Michigan to Clearwater County in Idaho. In 1958, he started his own logging venture: McLaughlin Logging. The operation began as a family business, and to this day it continues that legacy.

Although Bruce and Bruce's wife, Marguerite, are no longer living, his son, Mick McLaughlin, now serves as president of the company. Working alongside Mick are his wife, Mary Anne, son and daughter-in-law, Bruce and Andrea, and daughter and son-in-law Molly and Austin. They all do their part to keep the family business going strong. They also credit their success to their dedicated employees: Ed, Gary, Zane, Tom, Wade, Tristen, Tres, Gerald, Jay, Ward, Bennie, Joe and Larry.

Mick's journey in the company started when he was a teenager. "I worked with my dad on weekends and school breaks since I was about 13 years old, just kind of riding around with him and doing odds and ends," Mick says. "I worked every summer with him since I was about 16 years old. Then I went to college and graduated from Boise State in 1975. I came back here and pretty much was full-time with the company."

Mick graduated with a degree in education. But between the lure of family and the promise of decent income, he was drawn back to the family business and has been with it since.

### THE LOGGING LIFE

Much has changed since Bruce started his original logging company in Michigan. At that time the work was done with a McColloch chainsaw and his favorite draft horse, Baldy Bill.

*Mick McLaughlin and Cascade Trader sales specialist Cooper Brunoff*

> CASCADE TRADER IS EXCELLENT TO WORK WITH. **THEY PROVIDE GOOD SERVICE AND WE GET OUR PARTS IN A TIMELY MANNER. THE EQUIPMENT IS RELIABLE, TOO.**
>
> **– MICK MCLAUGHLIN** / McLaughlin Logging

From the start, their main business has been logging. They harvest timber for landowners who sell the timber to mills for all sorts of purposes. To harvest the trees, their company previously had three-man crews that operated with tools such as hand fellers, hand buckers and cat skinners. Today, things are much different.

Mick leads a team of about 17 employees and 7 to 12 contractors. Their equipment and operations move approximately 20 loads of timber a day. The team harvests the timber and then works with contracted trucks to deliver the logs to the various destinations that PotlatchDeltic has contracted with.

To fell the trees, move the timber and maintain logging roads, Mick and his team operate a variety of heavy equipment. Among them are two Doosan® DX300LL log loaders with processing heads, one DX300LL shovel logger, DX380LL shovel logger, DX225LL-5 road builder, and a Doosan DX225LL log loader. The company purchased the machines from Cascade Trader, the local Doosan dealer.

"Cascade Trader is excellent to work with," Mick says. "They provide good service and we get our parts in a timely manner. They furnished us with a used KETO 870 until our new one was in. The equipment is reliable, too.

"We hardly have anybody on the ground anymore," Mick says. "Our company runs a handsaw probably 15 days out of the year when we need to avoid SPZ zones and rocky areas."

The DX225LL-5 road builder piles brush and helps clean up the landing. It has an excavator boom and arm and a brush grapple to stack the material.

The reason why the work looks a little different and the reason for the success of McLaughlin Logging is the same: evolution. Mick and his team have found the key to maintaining a trustworthy and consistent business model that is also able to adapt and change with the times.

Though the basic job hasn't changed too much during the 60-plus years they have been in business, the way they go about doing it has. McLaughlin Logging has always been an early adopter of equipment and technology that help get the job done quicker and better.

In the late '80s they moved to mechanized logging with stroke delimbers, feller bunchers and grapple rubber-tired skidders. In 1994 they adopted the cut-to-length system for sizing and cutting trees for commercial thinnings. They also started working with some of the dangle heads. Now, they have equipment to access even more timber.

*continued on page 8*

## GROWTH RINGS

Since McLaughlin Logging's start in 1958, they have weathered many seasons to experience growth. In 2018, the company celebrated 60 years in business.

**THEN:** The business started with a three-man crew. They used chainsaws and manpower to log the land.

**NOW:** McLaughlin Logging employs a team of 20 with approximately 12 contracted trucks. The company uses mechanized equipment, including Doosan® log loaders and attachments. And the firm's operators perform steep-slope logging for increased revenue opportunities.

## STEEP SLOPES

Innovation and adaptation have been key to McLaughlin Logging's continued success. Most recently they adopted a Traction Lined Tethering machine for harvesting on steep slopes.

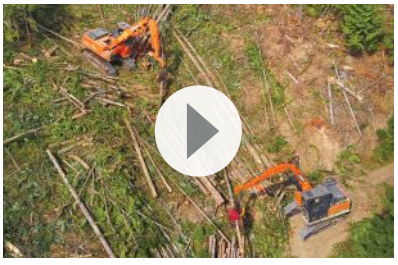
In 2018, they invested in this equipment to allow them to work on steeply sloped land. This has been an area that is tough for traditional logging equipment. The additional equipment has enabled them to add approximately 6 million feet to what they typically move annually, around 20 million feet.

Not only has their ability to work on vertical slopes helped them increase their volume, but it has also set them apart from their competition.

McLaughlin Logging also contracts with PotlatchDeltic and the Idaho Department of Lands to perform road maintenance, slide repair, road building and bridge installations, which is overseen by their son, Bruce. This is in addition to their regular timber harvesting work.

This is promising to Mick. With their main business of traditional land logging going well, they are looking forward to seeing where they can expand with this application. DM

See Mick's Doosan® forestry equipment working in Idaho at ***na.DoosanEquipment.com/McLaughlinLogging***

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## COMPANY INFORMATION

**Business:** Subsurface Constructors
**In business since:** 1906
**Location:** St. Louis, Missouri
**Doosan equipment:** DX170LC-5, DX180LC-5 and DX350LC-5 excavators
**Doosan dealer:** Gateway Dealer Network

# PIER PRESSURE

Nothing's more foundational to every new building project than, well, the foundation. Before a frame ever goes up, a project has to start on sure footing. Unfortunately, most jobsites are more like building on sand than solid rock.

Some land is replete with soft silt and clay. Sites in urban areas can contain fill soil from multiple earlier builds. In both cases, a contractor must stabilize sites before construction gets off the ground. Such stabilization often involves replacing the soft soil or installing a deep foundation. But a century-old St. Louis firm has grown its business on a newer process that's more effective and efficient.

Founded in 1906, Subsurface Constructors helped pioneer the recent use of vibro stone columns to stabilize new buildings' foundations in the United States. This innovative approach has helped Subsurface grow with projects in 36 states. And amid all that growth, Doosan® excavators have become integral to the process.

### A MAST OF THEIR OWN

Subsurface emerged from Wabash Drilling and the Smith & Brennan Pile Company. These two St. Louis companies built the foundations for most of the city's major buildings. For most of its history, the now family-owned company — led by brothers Jim Morgan and Jeff Morgan — shored up soft soil using deep foundations. That involves drilling to place piers or piles far into the ground, an oftentimes expensive process.

Then, nearly 100 years after the company's founding, everything shifted.

"The big change for us was about 2005, when we decided to get into ground improvement, specifically aggregate pier ground improvement," says Lyle Simonton, director of business development. "We first partnered with an overseas company to acquire equipment, but that partnership ran its course and we needed to innovate in order to grow. That's when we developed our own mast attachment."

Subsurface Constructors installs aggregate piers, also called vibro stone columns, by using a mast-mounted vibratory probe to compact stone into columns. After learning about the equipment from a company in the U.K., Subsurface became among the first companies to bring vibratory aggregate piers to the states. The firm designed its own special mast that's central to the process. As a vibratory probe on the mast is pushed into the earth, soft soil is displaced to make way for lifts of stone that are highly compacted with the probe.

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> WHEN YOU START CRUNCHING NUMBERS, WHETHER IT'S UPFRONT COST, MAINTENANCE COST, DURABILITY OF THE EQUIPMENT, HOW LONG DOES THIS STUFF LAST, **UPPER MANAGEMENT LIKED WHAT THEY HAD SEEN WITH DOOSAN.**
>
> — **ERNIE DAWSON** / Subsurface Constructors

DOOSAN CONNECT

### FULLY CONNECTED TO HIS EQUIPMENT

Everything's driven by hours for Ernie Dawson. As equipment manager for St. Louis's Subsurface Constructors, Ernie must ensure his fleet stays up, out and working as much as possible. And if ever a hiccup occurs with his Doosan® machines deployed to jobsites nationwide, he knows instantly — all thanks to DoosanCONNECT® telematics.

The online diagnostic tool connects Ernie to his fleet via the DoosanCONNECT mobile app. The app lets him monitor his equipment in real time to see fault codes and maintenance alerts. He can survey machine productivity, too, including fuel rates.

"Why does this DX350LC-5 have a fuel-consumption rate of 40% and this one's got 65%?" Ernie says, recalling one such scenario. "What's going on? How close are we to our service intervals? ... I can see all of that, and I absolutely love it."

With jobs in many regions of the United States, Ernie can also use GPS to track his equipment with DoosanCONNECT telematics. After vandalism occurred at a New York jobsite, Dawson used the program to set up geofences around his equipment to assist with securing his machines. "I can't speak highly enough about the telematics," Ernie says. "I wish our older fleets had it."

And the machines that support those masts? Doosan excavators.

"Our partnership with Doosan has allowed us to take this mast that we developed, ship that mast all over the place and put it on an excavator," Lyle says.

Subsurface originally intended to affix their masts to rental units nationwide. But the scattershot availability of rental excavators prompted the company to consider an equipment company "that would allow us to be able to be responsive enough, take this equipment around the country and do this work," Lyle continues. "And that's where Doosan came in."

## A HIGHLY EFFICIENT FLEET

Today, Subsurface fields jobs nationwide using Doosan equipment from St. Louis as well as offices in Boston, Cleveland and Minneapolis. The company is now a full-service geotechnical contractor known in the United States for its reliable ground improvement. And that requires reliable machines, says Ernie Dawson, Subsurface's equipment manager.

"We've used John Deere, we've used Caterpillar, and we started looking at Doosan," Ernie says. "When you start crunching numbers, whether it's upfront cost, maintenance cost, durability of the equipment, how long does this stuff last, upper management liked what they had seen with Doosan."

Subsurface maintains a fleet of 15 Doosan excavators. They range from the DX170LC-5 to the DX350LC-5. Subsurface's mast, once affixed, towers high over the excavator at work, which prompted Ernie's team to favor the heavier frame of the DX350LC-5. But as he crunched the numbers further, Ernie also found success using their mast on the lighter DX180LC-5 and eventually the highly transportable DX170LC-5.

"We try to run as lean as we possibly can, so if we have to have permits — oversized loads caused by a large machine — our bottom line is not going to be as good," Ernie says. "So we gave [the DX170LC-5] a shot, and now we save money on trucking."

The performance and efficiency needed for Subsurface's intense applications are all there with Doosan, according to Ernie. But the real difference-maker for him comes from inside the cabin. There, operators on Subsurface projects find the full visibility needed for their specific application.

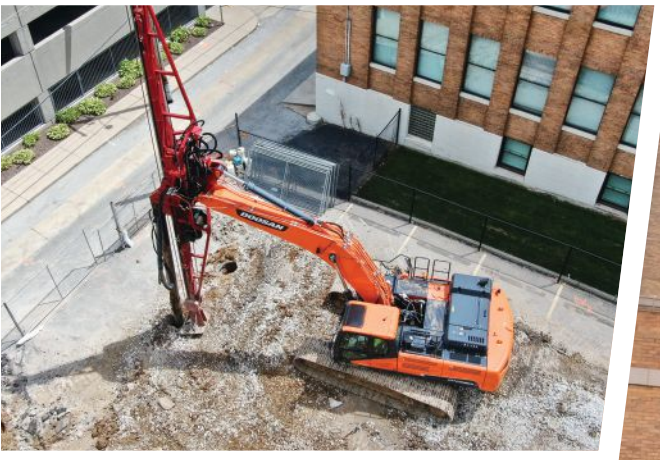
"Now Doosan is putting cameras on the side of the machines along with the back, which I absolutely love because 90% of our work on making the stone columns is backward," Ernie says. "You're traveling backward as you're making them."

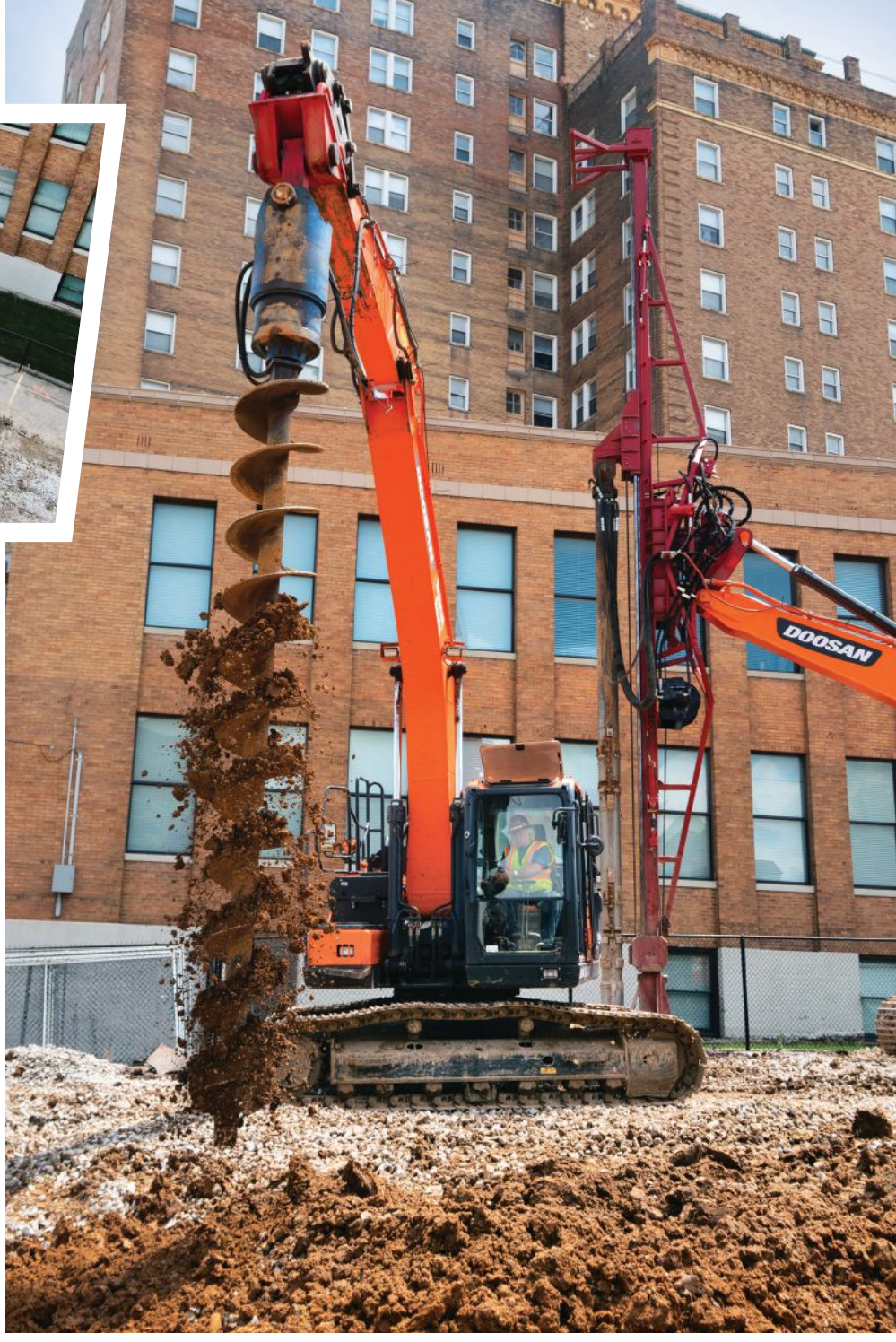
Other cab perks abound, he says, including the heated seat, heat and air conditioning and overall ergonomics. And the cab's quiet, too, he says.

"It's nice because I can go home and hear at the end of the day," Ernie says. "Where some equipment you run, there's a reason why operators are normally pretty deaf. So, just that aspect of ergonomics is nice."

## FOUNDATIONAL SUPPORT

After investing a considerable amount of money into its own mast system, Subsurface analyzed Doosan excavators to be sure they packed the






power and performance to support the masts. But Murphy's law still applies, Ernie says, and anything can happen. One out-of-commission piece on one excavator can snarl a whole jobsite for Subsurface.

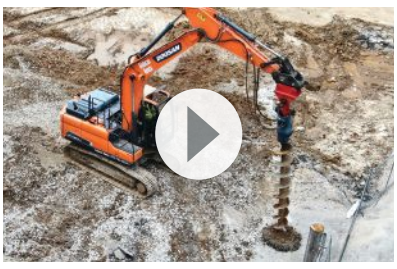
"We operate under lean, lean, lean, lean," Ernie says. "That's what makes us competitive. And when we have one link in that chain break, it's all bad. It gets expensive really quick — thousands of dollars an hour."

When that happens, Ernie doesn't hesitate to call their dealer, Gateway Dealer Network. No matter where Subsurface is working — Ohio, Pennsylvania, somewhere up the East Coast — the dealer has been able to get an excavator on a trailer and sent his way "at the drop of a hat."

"And so I'll have stuff scattered to the four winds, and if I get into a bind, they go out of their way to take care of me," he says. "That goes a long way."

Innovative approaches. Powerful machines. A reliable dealer. They're all crucial to Subsurface's success, Ernie says. And that adds up to a solid foundation. DM

See Subsurface Constructor's Doosan excavators stabilizing foundations: ***na.DoosanEquipment.com/SubsurfaceConstructors***



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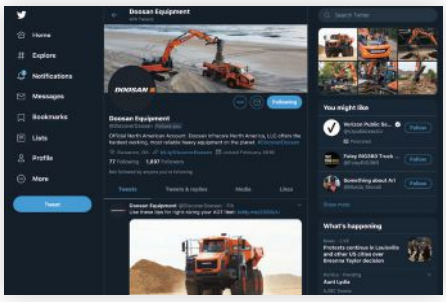

# OLD-SCHOOL ETHIC, NEW-SCHOOL EQUIPMENT

## COMPANY INFORMATION

**Business:** Carolina Drilling
**In business since:** 1981
**Location:** Mocksville, North Carolina
**Doosan equipment:** DX180LC-5, DX225LC-5, DX300LC-5 and DX350LC-5 crawler excavators; DL250-5 wheel loader
**Doosan dealer:**
ACT Construction Equipment

Jason Tutterow knows how to have a blast on the job. His company, Carolina Drilling, specializes in explosions that bust up stubborn rock below cities across the southeast. He clears the way for sewer and water pipes. It's work few consider fun: The projects run long, are often very tough and need more employees than other construction gigs.

"It's hard to find anybody to do this kind of work anymore," Jason says. "So a lot of my drillers have been here since the '80s and '90s."

Guys like James Satterfield, Jack Meadows and Alvis Bell have been with Carolina Drilling for decades, some back to 1981. That's when Jason's late dad, James Larry Tutterow, founded the Mocksville, North Carolina, business. It was old-school then. Still is, in many ways.

But a lot has changed, too. Today, Carolina Drilling works in Georgia, South Carolina and as far west as Tennessee. The company applied its old-school ethic to become one of the region's top drilling-blasting companies — all with a fleet of new-school equipment from Doosan.

### DRILL. DETONATE. DIG.

When soil gets rocky enough to halt even an excavator bucket, that's when Carolina Drilling comes in. First, a drilling rig lets the team drive holes into the soil. Explosives are then carefully placed in the ground. After that: kaboom. A chain of explosions ripples through the ground, forming an earthen wave above as they detonate.

Once the dust clears, a parade of Doosan® machines get to work. Breakers attached to some excavators help hammer down the post-blast boulders into smaller chunks. Meanwhile, operators in excavators transfer the hammered rock with buckets into a crusher. The processed material is then utilized onsite.

Jason's teams have the process down pat. They've carved out space for shopping

centers, high rises and residential areas throughout the region. But their bread and butter lies in city contracts.

"We specialize in drilling and blasting for water and sewer pipe" Jason says. "We probably lead the East Coast in that."

## THE TATER TUTTEROW WAY

Jason dips into everything for Carolina Drilling, including day-to-day management, bidding and buying equipment — pretty much anything in-office.

"I like to be drilling and blasting and running pressures," Jason says. "But I don't have time to do it anymore."

Not since 2015, at least. That's when Jason took over the business after the passing of his father, James Tutterow. Known as "Tater" in the community, the elder Tutterow launched Carolina Drilling. James named the crushing operation — a sister business called Reese Crushing — after Jason's daughter. A land-clearing company, Cana Contracting, was later added to the mix.

Today, Jason is part-owner of both businesses with other members of his family — his mom, Frances Tutterow; sister, Elizabeth Tutterow Burchette; and wife, Page Tutterow. But they still employ several of the drill hands Jason's dad hired. They work with the same sales specialist, too: Brandon Wilkinson of Charlotte's ACT Construction Equipment.

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**DOOSAN HAS CAUGHT UP** WITH THE SO-CALLED BIG BOYS.

**– JASON TUTTEROW** / Carolina Drilling

"My salesman, Brandon, he bends over backward for me," Jason says.

He appreciates his Doosan dealer's reasonable rates and no-surprise cost estimates, but the real upside comes during downtime. Once, Jason even helped out a competitor who was having trouble finding pumps for his Doosan® machines.

"I talked to the guy and I said, 'You give me 20 minutes,'" Jason recalls. "[Brandon] went in and got a list of parts that they use and we use, sat down with them, and said, 'You're not going to have this problem.'"

That's the kind of service that's led to a 15-year partnership.

"He's always taken very good care of me," Jason says. "If I have something broken, he's on it."

## FROM YELLOW TO ORANGE

The family's partnership with Doosan stretches back even further. A rock drill salesman recommended they try an orange machine. "We were like, nah," Jason recalls. "We were Caterpillar people at the time. That's all we'd ever had."

Eventually, they tried out a 30-ton Doosan excavator with a rock breaker attached. Then, they bought another. Both performed without a hitch, he says — not one hiccup.

"I've had machines hold up for 20 years now," Jason says. "I've switched it from my [breaker] to a bucket to move massive boulders. It still runs, man. It's hard to beat."

Today, Carolina Drilling has 11 Doosan machines in its fleet. Most are excavators ranging from a DX180LC-5 up to a DX350LC-5, including five DX300LC-5 machines. A DL250-5 wheel loader aids crushing operations.

*Pictured left to right: Jason Steelman, ACT Construction Equipment; Jason Tutterow, Carolina Drilling; and Brandon Wilkinson, ACT Construction Equipment.*

The Tutterows started out buying smaller Doosan excavators before finding their sweet spot with the 300-sized machines. Jason calls them the perfect match for their crusher's size: They're big enough to move material quickly, but not so quick that they back up the crusher and need to idle (and burn valuable fuel).

Jason also values the two-way auxiliary hydraulic flow, which comes standard on Doosan excavators. The excavators' ability to flip regularly between drills and rock breakers on his jobsites is "a big deal" to him.

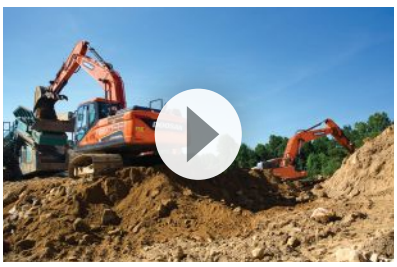
It's just one innovation of many over the years that convinced him to stick with Doosan.

"When I first started, Doosan was sort of a basic meat-and-potatoes machine," Jason says. "And now you've got a lot more features on it, the bells and whistles the bigger brand machines came out with. Doosan has caught up with the so-called big boys."

Since its founding by Jason's father, Carolina Drilling has kept its old-school work ethic while climbing toward the top of its field. And Doosan has grown right along with it. The company doesn't see that changing anytime soon.

"If it ain't broke, don't fix it," Jason says. "Let's put it that way." DM

See Jason's Doosan machines at work: ***na.DoosanEquipment.com/CarolinaDrilling***



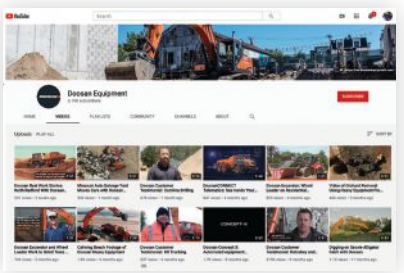
## SEAMS EASY ENOUGH

A recent 150-house project in Wake Forest, North Carolina, came with unseemly soil for Carolina Drilling. The rock below the 96-acre development proved "very seamy," Jason Tutterow says, with layers of soil and rock whose seams let energy from his crew's explosives escape easily — effectively weakening the blasts.

Without the pressure necessary for a sufficient blast, Tutterow's team turned to decking. Decking is a process of placing explosives (or "decks") at precise points within a hole so as to "seal" the seam to allow a proper blast. It worked, leaving the crew's Doosan® excavators to help break up and crush the blasted-up rock into ABC — or aggregate base course — used to support roads paved within the development.

## WATCH US ON YOUTUBE

See and hear from Doosan customers as they put our machines to work. Watch us on YouTube at *youtube.com/doosanequipment*



## COMPANY INFORMATION

**Business:** Central Composting
**In business since:** 2002
**Location:** Abbotsford, British Columbia
**Doosan equipment:** DL420-3 and DL420-5 wheel loaders
**Doosan dealer:** Westerra Equipment

# COMPOST TO CUISINE

Ever wonder how mushrooms make their way into your dinner entree? You may picture people walking in a forest harvesting fungi off rotting logs or shaded marshy meadows. You probably don't imagine heavy construction equipment.

The truth is, growing mushrooms en mass takes a lot more work than foraging a forest. Many steps and man-hours go into those hearty, earthy delicacies. Ask Zelko Fuduric. He is the general manager and facility director at Central Composting. His company in Abbotsford, British Columbia, oversees the mushroom production process for its parent company, Champs Mushrooms.

### CREATING COMPOST

To grow any crop, the first step is to make sure you have the right nutrients and growing conditions. That's where Central Composting comes in. Their main jobs are creating the compost to grow the mushrooms and transporting it to their underground farming locations.

The process starts by combining a variety of ingredients like straw and grass to start the compost mix. The materials are then brought to a commercial-grade mixing barrel to combine everything together. The mixer creates the substrate that will become great fertilizer for the mushrooms.

After employees make the compost to fertilize the mushrooms, the next step is to transport the compost to the farming tunnels. Zelko uses Doosan® DL420-3 and DL420-5 wheel loaders and buckets for this job.

> **THE EQUIPMENT IS VERY RELIABLE.** THEY START EVERY TIME WE NEED THEM WITH VERY MINIMAL BREAKDOWNS.
>
> **– ZELKO FUDURIC** / Central Composting

## HARSH CONDITIONS FOR MEN AND MACHINE

Since mushrooms are part of nature's clean-up crew, it makes sense that their preferred growing environment isn't glamorous. Mushrooms thrive in a damp, dark place with decomposing material that they can feed on. Central Composting creates the ideal setting with its tunnel farms — for the fungi.

But it makes things difficult for the crew and machines. The biggest challenge for the company's 25 employees is the harsh environment in which they work and operate the machines.

Underground, there is enough shade and moisture to create the right growing conditions for mushrooms. Unfortunately, this process produces high amounts of ammonia. That makes for a tough environment for both the workers and the machines.

"It's like having equipment in a salt mine," Zelko says. "[The machines] corrode very, very rapidly. It's like putting your car in a salt bath. The ammonia eats away at the metal. It eats away at the joints. It eats away at the electronics. So, the environment that we work in is extremely harsh.

"My guys all have to wear special monitors and masks. That's why the biggest challenge is the actual working halls and the conditions of the equipment. Corrosion is a big part of that, so I need equipment that doesn't fall apart."

While the workers can wear protective gear, the machines are subjected to the damp, ammonia-filled environments. Zelko and his team must constantly keep up with maintenance to make sure the machines are ready to work. While routine maintenance helps to keep the machines running, anything beyond the basics is handled by their local dealer, Westerra Equipment.

*continued on page 18*

"I've gotten to know pretty much all the management personally, and it's an excellent group, professional when it comes to work," Zelko says. "And I've become friends with quite a few of them, too."

The harsh environment isn't the only challenge for the crew. Often the team has long days, sometimes working 10- to 12-hour shifts six days a week. Because of this, another big factor in Zelko's equipment is how it plays with his workers.

"So far, they like Doosan the best," Zelko says. "Like they say, if it's not broke, don't fix it. Right? I've brought other equipment in just to have my guys run it and get a feel for comparison with others. We've had other machines here before I started buying Doosan. We had other wheel loaders from different manufacturers. The guys found that Doosan [was] a much better machine, much better to operate."

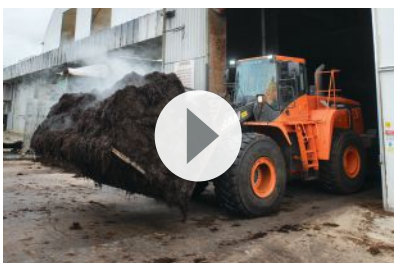
## A TASTY OUTCOME

After Zelko and his team lay the groundwork for the mushrooms to grow, they let the fungi do their thing. After harvesting the crop, Champs Mushrooms handles the rest. They package and distribute the mushrooms to grocery stores and restaurants.

The mushrooms grown are mainly portobellos, criminis and white buttons. With their efficient process, they are able to roll out about one million pounds of mushrooms every week. Then the mushrooms are on their way toward dinner plates.

These mushrooms aren't picked by hand in some serene forest. Instead, there's a whole team of hard workers behind them. The next time a mushroom's on your fork, think of people like Zelko Fuduric — and maybe a wheel loader or two. DM

See Zelko's Doosan wheel loaders in action: ***na.DoosanEquipment.com/CentralComposting***



## READY AND RELIABLE

Working in extreme conditions means paying close attention to the equipment. Zelko Fuduric partners with his Doosan® equipment dealer, Westerra Equipment, to ensure that the machines are running properly.

Zelko says he appreciates the availability of parts from his local dealer. And he is thankful for the knowledgeable service staff.

"The equipment is very reliable," Zelko says. "They start every time we need them with very minimal breakdowns."

# QUARRY BOOSTS PRODUCTION WITH LOADER TECH

Since 2017, Central Texas Stone and Aggregate, LLC, has been on a mission to increase its production of rock and aggregate to support construction jobs throughout central and southern Texas under the guidance of General Manager Cole Bland.

Bland recalls that just three years ago, approximately 70% of the quarry materials were used by the family-owned construction business, Joe Bland Construction, L.P. He adds, "The other 30% was sold to other construction companies. I believed we were missing out on a huge opportunity to increase our material capacity and build our customer base."

Bland set out to double the quarry production from its current 600,000 tons and introduce operational efficiencies with help from modern equipment and advanced technology.

## MATERIAL DEMAND

Central Texas Stone and Aggregate quarry crews relied on one wheel loader to load customer trucks and another loader to feed the crusher. The quarry was operating much the same as it had since the 1990s — one shift, 200–250 tons an hour, producing about 600,000 tons annually.

In 2018, under Bland's expansion plan, the company needed a second wheel loader to keep up with demand. Bland called the president of Venture Drilling Supply, Colt McCarthy, about ways to increase productivity.

## COMPANY INFORMATION

**Business:** Central Texas Stone and Aggregate, LLC
**In business since:** 2007
**Location:** Florence, Texas
**Doosan equipment:** DL550-5 wheel loader
**Doosan dealer:** Venture Drilling Supply

McCarthy recommended a Doosan® DL550-5 wheel loader with a 7.5-cubic-yard bucket capacity. The DL550-5 is a workhorse with impressive power, tipping capacity and breakout force. It's uniquely well suited to material handling in quarries such as Central Texas Stone and Aggregate. Bland had considered other brands but chose Doosan because Venture Drilling Supply was able to customize the DL550-5 loader by pairing it with a larger bucket and counterweights. That adjustment allowed the quarry crew to fill trucks with 20-plus tons of gravel in just two passes.

*continued on page 20*

> OUR LEAD LOADER OPERATOR LOVES THE SYSTEM. **IT'S GIVEN HIM GREATER CONFIDENCE THAT HE'S LOADING TRUCKS WITH ACCURACY AND SPEED** — REGARDLESS OF TRUCK BED SIZE OR MATERIAL.
>
> – **COLE BLAND** / Central Texas Stone and Aggregate

Increased sales of materials placed more stress on wheel loader operators to load trucks with speed and accuracy.

## PAYLOAD PRECISION

In 2019, Central Texas Stone and Aggregate averaged about 190 trucks per day. On its busiest days, there are 50–60 trucks and trailers waiting in line for materials on any given morning — and the pressure on the wheel loader operator is huge.

"Not all haul capacities are the same," Bland says. "Typically, wheel loader operators visually estimate the total based on scoop counts. But not all trucks and trailers are the same size."

Two similar-looking trucks could have different capacities because of different add-ons and trimming. One could be 18 tons and the other 16 tons while trailers can range from 21 to 24 tons.

"If the truck is sold by the load, drivers might not be too picky if weight is a little more or less than, say, 23 tons," Bland says. "But some drivers are paid by weight. So when a truck is under- or overloaded, the driver has to return to the pit to adjust the load appropriately. When there are 50 to 60 trucks in line, chaos quickly ensues."

Looking to improve accuracy and reduce the chance of over/under weights, Bland once again called McCarthy, to talk about a technology that he had seen at a recent aggregates conference. Specifically, he wanted to know more about the Trimble® LOADRITE™ L3180 SmartScale for wheel loaders.

The Trimble LOADRITE L3180 SmartScale is offered as an option by Doosan through its dealers such as McCarthy's Venture Drilling.

The L3180 SmartScale is an onboard weighing system designed to optimize loadout, track productivity and prevent overloading. It measures load weight lifted by the wheel loader bucket using multi-axis inertial measurement unit (IMU) sensors, transducers, Wi-Fi and GPS. The sensors and hydraulic pressure transducers are installed on the loader's lifting arm mechanism of the bucket and send information to the LOADRITE indicator in the cab, which converts the data to a digital weight reading. The operator has instant evidence that his estimates are close.

In the cab, the operator can see production metrics using a 5.7-inch color

touch screen. An added bonus is that an eTicket feature sends load tickets via email to drivers. The system is able to deliver precise data — even in rough terrain — technique and machine movement using proprietary weighing techniques.

"It took a day or so to install and calibrate the SmartScale on the Doosan loader and we were ready to go," Bland says. "Our lead loader operator loves the system. It's given him greater confidence that he's loading trucks with accuracy and speed — regardless of truck bed size or material."

## SCALED TO EFFICIENCY

Since implementing the SmartScale, the team at Central Texas Stone and Aggregate has cut over/under loads from 8 in 100 to fewer than 1 in 100.

Bland says he's seeing many benefits from the technology.

"On a busy day, having trucks returning to the pile to adjust loads is costly in both time and customer satisfaction," he says. "Without the SmartScale, it could potentially cost me hundreds of dollars a day in time and fuel. With this new system, our customers are much happier with the efficiency that we can get them loaded and on the road to their jobs."

The L3180 has also provided some checks and balances to the quarry operations. Bland says that one day recently, his crew was getting fluctuating weights on its truck scale compared to the SmartScale weights.

"When we checked the truck scale versus the weight shown on the SmartScale, we confirmed there was an issue with the truck scale," Bland says. "After more investigation, we found a hydraulic leak."

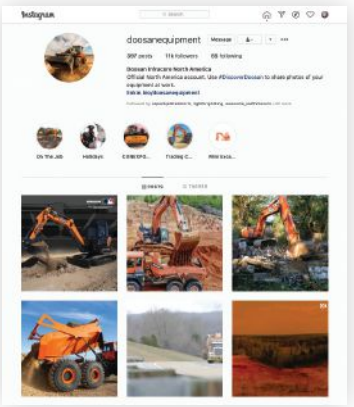
The Central Texas Stone and Aggregate quarry continues to grow, adding another 250-plus acres in 2019. The total quarry is more than 500 acres. In 2019, the quarry produced 1.3 million tons operating at 350 tons per hour.

"Higher production and technology have helped us expand our customer base and be more competitive, which was exactly the goal we were hoping to achieve," Bland says. "I strongly believe that quarry owners would benefit greatly by utilizing the SmartScale for loading trucks. It gives loader operators confidence, minimizes customer turnaround time and drives productivity." DM

Investing in technology significantly increased Central Texas Stone and Aggregate's productivity. See the company's Doosan wheel loader at work: ***na.DoosanEquipment.com/CentralTexas***

## SCROLL WITH US ON INSTAGRAM

Dive into the sights and sounds of Doosan with stunning photos, video and more. Find us at *@doosanequipment*



# PRODUCT SPECIFICATIONS

## ARTICULATED DUMP TRUCKS

| | Payload | Body Capacity* Heaped | Rated Power Gross |
|---|---|---|---|
| **DA30-5** | 61,729 lb. (28,000 kg) | 22.0 yd³ (16.8 m³) | 375 hp (276 kW) |
| **DA45-5** | 90,390 lb. (41,000 kg) | 31.9 yd³ (24.4 m³) | 500 hp (368 kW) |

** Without tailgate*

## CRAWLER EXCAVATORS

| | Operating Weight | Bucket Capacity Heaped, ISO/SAE | Rated Power Gross |
|---|---|---|---|
| **DX140LC-5** | 32,783 lb. (14,870 kg) | 0.48 yd³ (0.37 m³) | 115 hp (86 kW) |
| **DX140LCR-5** | 34,987 lb. (15,870 kg) | 0.51 yd³ (0.39 m³) | 115 hp (86 kW) |
| **DX170LC-5** | 38,376 lb. (17,407 kg) | 0.86 yd³ (0.66 m³) | 131 hp (98 kW) |
| **DX180LC-5** | 43,224 lb. (19,610 kg) | 0.92 yd³ (0.70 m³) | 131 hp (98 kW) |
| **DX225LC-5*** | 52,086 lb. (23,626 kg) | 1.20 yd³ (0.92 m³) | 166 hp (124 kW) |
| **DX235LCR-5** | 56,019 lb. (25,410 kg) | 1.20 yd³ (0.92 m³) | 189 hp (141 kW) |
| **DX255LC-5** | 57,752 lb. (26,196 kg) | 1.44 yd³ (1 .10 m³) | 189 hp (141 kW) |
| **DX300LC-5*** | 68,764 lb. (31,191 kg) | 1.66 yd³ (1.27 m³) | 271 hp (202 kW) |
| **DX350LC-5** | 80,689 lb. (36,600 kg) | 1.95 yd³ (1.49 m³) | 286 hp (213 kW) |
| **DX420LC-5** | 94,799 lb. (43,000 kg) | 2.49 yd³ (1.90 m³) | 345 hp (257 kW) |
| **DX490LC-5** | 112,203 lb. (50,894 kg) | 2.80 yd³ (2.14 m³) | 380 hp (283 kW) |
| **DX530LC-5*** | 116,576 lb. (52,878 kg) | 3.13 yd³ (2.39 m³) | 380 hp (283 kW) |
| NEW **DX800LC-7** | 181,000 lb. (82,100 kg) | 5.10 yd³ (3.90 m³) | 539 hp (402 kW) |

*LC = Long Carriage LCR = Long Carriage Reduced Tail Swing * = Super-Long-Reach (SLR) option available*

## WHEEL EXCAVATORS

| | Operating Weight | Bucket Capacity Heaped, ISO/SAE | Rated Power Gross |
|---|---|---|---|
| **DX140W-5** | 34,203 lb. (15,514 kg) | 0.73 yd³ (0.56 m³) | 137 hp (102 kW) |
| **DX190W-5** | 43,431 lb. (19,700 kg) | 1.05 yd³ (0.80 m³) | 174 hp (129 kW) |
| **DX210W-5** | 47,179 lb. (21,400 kg) | 1.12 yd³ (0.86 m³) | 189 hp (141 kW) |

## MINI EXCAVATORS

| | Operating Weight | Bucket Capacity Heaped, ISO/SAE | Rated Power Gross |
|---|---|---|---|
| **DX35-5** | 8,193 lb. (3,716 kg) | 0.13 yd³ (0.10 m³) | 34 hp (25 kW) |
| **DX42-5K** | 10,114 lb. (4,588 kg) | 0.19 yd³ (0.15 m³) | 43 hp (31 kW) |
| **DX50-5K** | 11,486 lb. (5,210 kg) | 0.20 yd³ (0.15 m³) | 50 hp (37 kW) |
| **DX62R-3** | 13,799 lb. (6,259 kg) | 0.23 yd³ (0.17 m³) | 59 hp (44 kW) |
| **DX63-3** | 13,799 lb. (6,259 kg) | 0.23 yd³ (0.17 m³) | 59 hp (44 kW) |
| **DX85R-3** | 18,960 lb. (8,600 kg) | 0.37 yd³ (0.28 m³) | 59 hp (44 kW) |

*NOTE — Where applicable, dimensions are in accordance with Society of Automotive Engineers (SAE) and ISO standards. Specifications and design are subject to change without notice. Pictures of Doosan equipment may show other than standard equipment. All dimensions are shown in inches. Respective metric dimensions are enclosed by parentheses. Doosan Infracore North America, LLC, equipment is manufactured with a Quality Management System that is in compliance with ISO 9001:2008. All dimensions are given for the standard configuration unless otherwise noted.*

## WHEEL LOADERS

| | Bucket Capacity Heaped, ISO/SAE | Tipping Load, Static Full Turn | Rated Power Gross |
|---|---|---|---|
| **DL200-5*** | 2.6 yd³ (2.0 m³) | 18,620 lb. (8,445 kg) | 142 hp (106 kW) |
| **DL200TC-5** | 2.6 yd³ (2.0 m³) | 16,625 lb. (7,540 kg) | 142 hp (106 kW) |
| **DL220-5*** | 3.0 yd³ (2.3 m³) | 18,750 lb. (8,505 kg) | 160 hp (119 kW) |
| **DL250-5*** | 3.3 yd³ (2.5 m³) | 21,186 lb. (9,610 kg) | 172 hp (128 kW) |
| **DL250TC-5** | 3.3 yd³ (2.5 m³) | 20,723 lb. (9,400 kg) | 172 hp (128 kW) |
| **DL280-5*** | 3.7 yd³ (2.8 m³) | 23,389 lb. (10,609 kg) | 172 hp (128 kW) |
| **DL300-5*** | 4.2 yd³ (3.2 m³) | 29,939 lb. (13,580 kg) | 271 hp (202 kW) |
| **DL350-5*** | 4.8 yd³ (3.7 m³) | 29,194 lb. (13,424 kg) | 275 hp (205 kW) |
| **DL420-5*** | 5.5 yd³ (4.2 m³) | 35,550 lb. (16,125 kg) | 345 hp (257 kW) |
| **DL450-5*** | 6.3 yd³ (4.8 m³) | 39,937 lb. (18,115 kg) | 345 hp (257 kW) |
| **DL550-5*** | 7.5 yd³ (5.7 m³) | 47,675 lb. (21,625 kg) | 380 hp (283 kW) |
| **DL580-5** | 9.0 yd³ (6.9 m³) | 65,455 lb. (29,690 kg) | 380 hp (283 kW) |

*TC = Tool Carrier * = High-Lift (HL) option available*

## LOG LOADERS

| | Operating Weight | Swing Torque | Rated Power Gross |
|---|---|---|---|
| **DX225LL-5** | 68,784 lb. (31,200 kg) | 69,623 lbf.-ft (9,626 kgf-m) | 167 hp (124 kW) |
| **DX300LL-5** | 81,703 lb. (37,060 kg) | 87,787 lbf.-ft (12,137 kgf-m) | 271 hp (202 kW) |
| **DX380LL-5** | 113,538 lb. (51,500 kg) | 129,876 lbf.-ft (17,956 kgf-m) | 317 hp (237 kW) |

| | Operating Weight | Bucket Capacity Heaped, ISO/SAE | Rated Power Gross |
|---|---|---|---|
| **DX225LL-5*** | 63,714 lb. (28,900 kg) | 1.2 yd³ (0.92 m³) | 166 hp (124 kW) |
| **DX300LL-5*** | 82,012 lb. (37,200 kg) | 2.1 yd³ (1.60 m³) | 271 hp (202 kW) |
| **DX380LL-5*** | 108,699 lb. (49,300 kg) | 2.4 yd³ (1.80 m³) | 318 hp (237 kW) |

*LL = Log Loader * = Road Builder configuration*

## MATERIAL HANDLERS

| | Operating Weight | Max. Reach Ground | Rated Power Gross |
|---|---|---|---|
| **DX225MH-5** | 60,848 lb. (27,600 kg) | 35 ft. 5 in. (10,800 mm) | 166 hp (124 kW) |
| **DX300MH-5** | 79,366 lb. (36,000 kg) | 42 ft. 7 in. (13,000 mm) | 271 hp (202 kW) |
| NEW **DX250WMH-5** | 57,221 lb. (25,955 kg) | 35 ft. 2 in. (10,720 mm) | 189 hp (141 kW) |

*MH = Material Handler WMH = Wheel Material Handler*

Visit **na.DoosanEquipment.com** for more product specifications.

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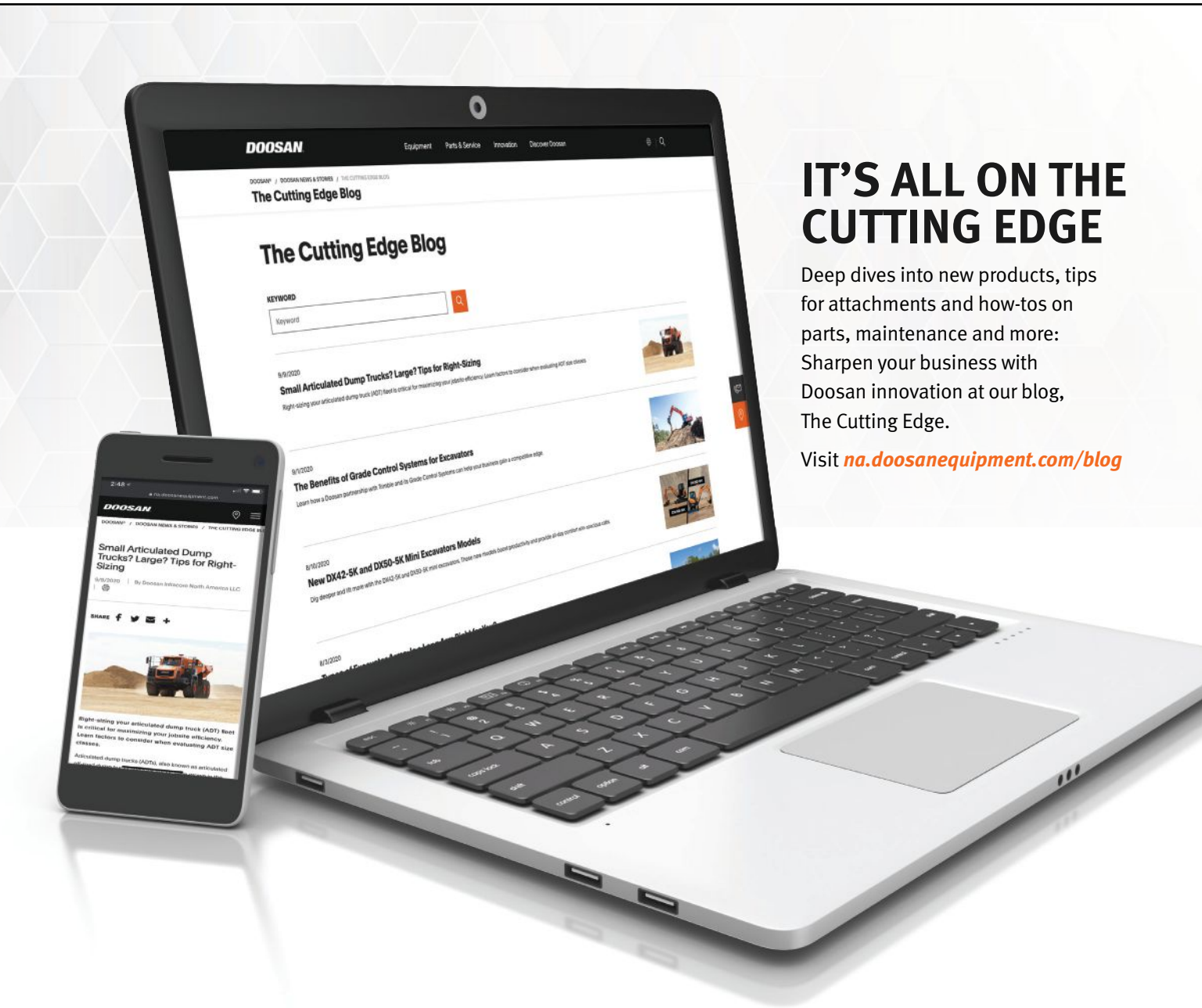


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